

MLT-JR Tracked Robot Platform

Assembly and Operation

The MLT-JR tracked robot platform and is equipped with 32mm motors, a motor controller, and Spektrum remote control. This is a rugged and maneuverable robot platform.

Images shown may not be an exact representation of the robot's features listed in this document



Contents

Mechanical Assembly	4
Electrical Assembly	12
Operation.....	12
General Terms.....	13

Caution:

SuperDroid Robots, Inc
224 Technology Park Lane
Fuquay Varina, NC 27526
www.SuperDroidRobots.com

Contact
(919) 557-9162
SDR@SDRobots.com



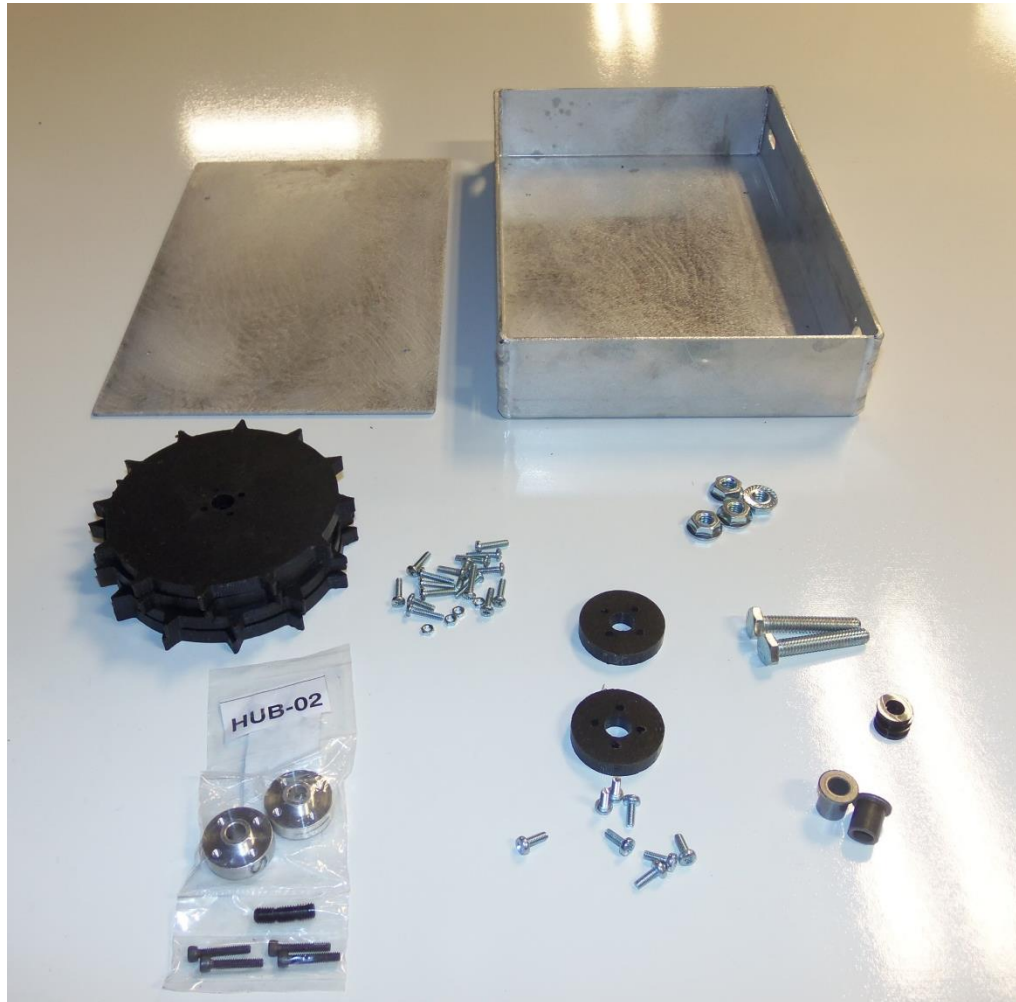
MLT-JR Tracked Robot Platform

It is always important to use safe practices. Only people with good mechanical and electrical experience should work on the robots. Minors should always be supervised by adults.

The aluminum chassis also has many sharp edges and care needs to be taken not to get cut. Sharp edges can be brought down with a metal file.

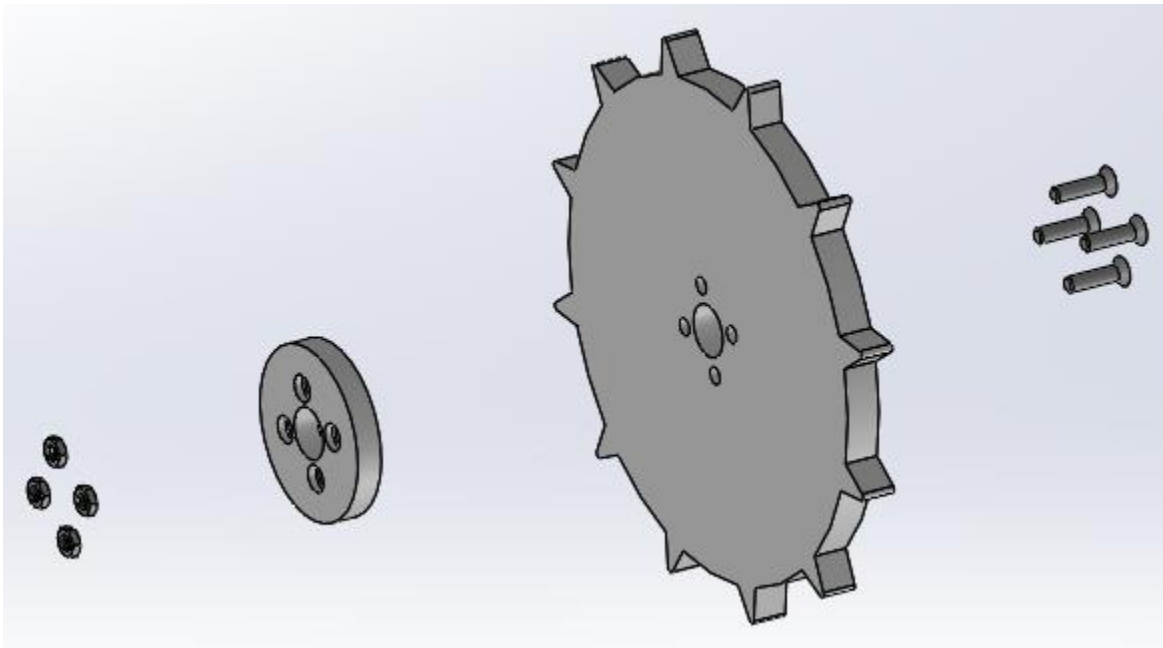
The treaded ATRs have very powerful motors. **The treaded design presents many pinch points!** If fingers or hands are inside the treaded section and the motors energize, you cause serious injury. ALWAYS disconnect the power before working on the robot. The easiest way of disconnecting the power is by pulling the motor fuse(s). Do not solely rely on the switch as a disconnect, since it can be easily bumped and turned on resulting in the motors surging.

Mechanical Assembly

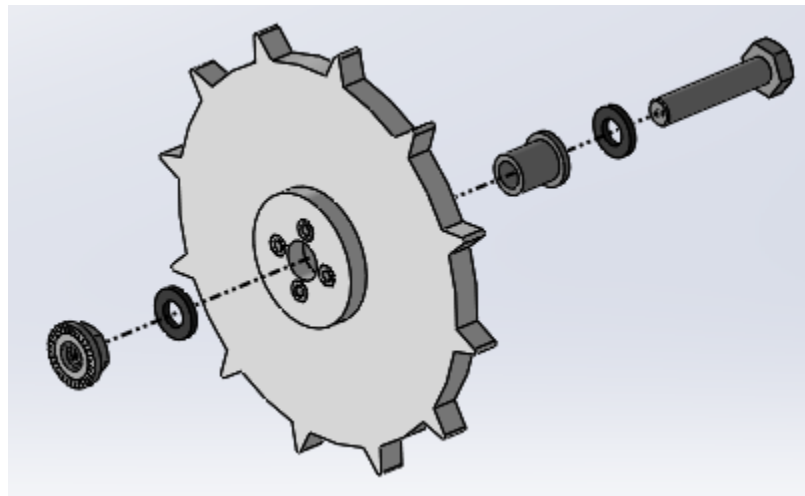
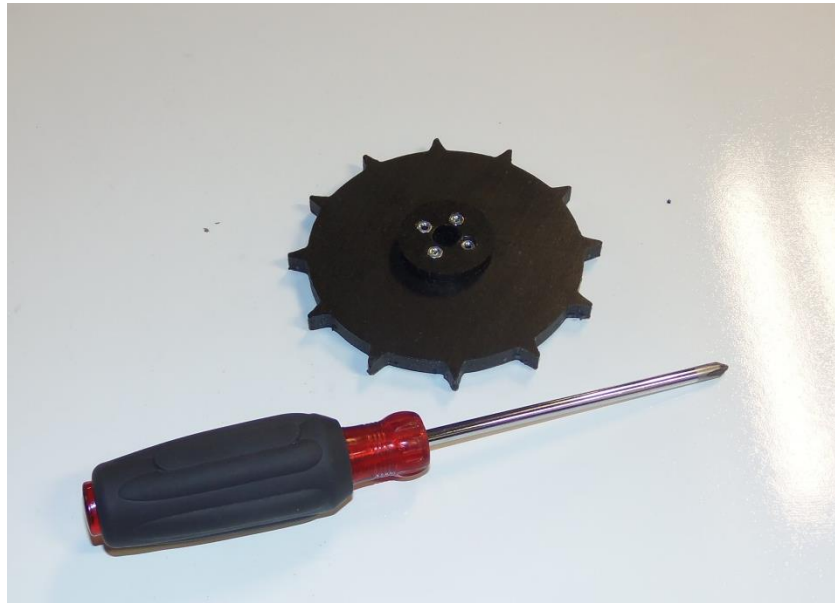


Parts of the MLT-JR robot kit.

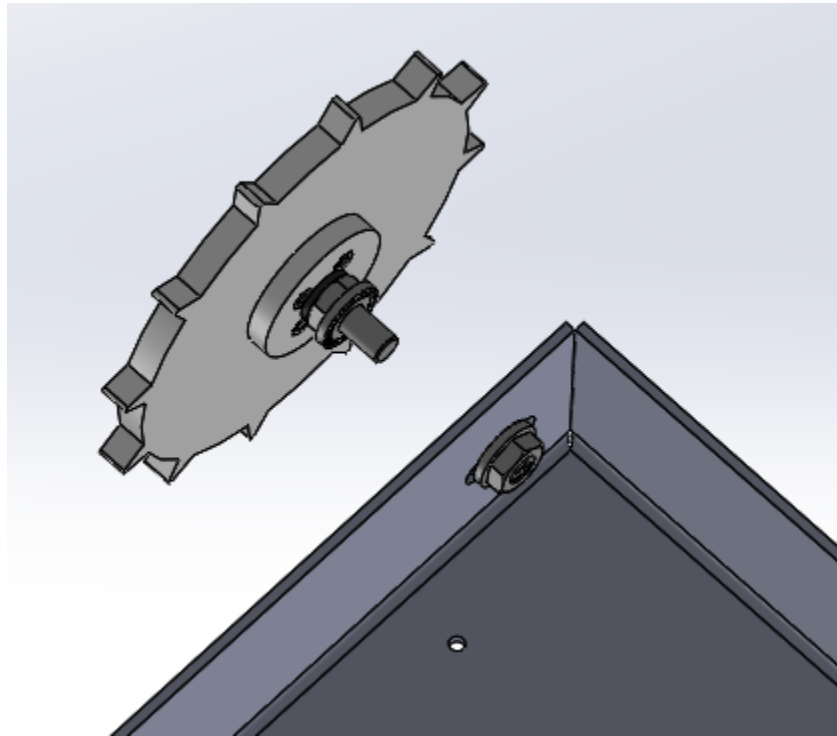
1. Start by pressing the nuts into place on the wheel bearing hubs. There will be 8 nuts and two bearing hubs. Sometimes it helps to use one of the #4 machine screws to hammer the nuts into the counter bored holes.



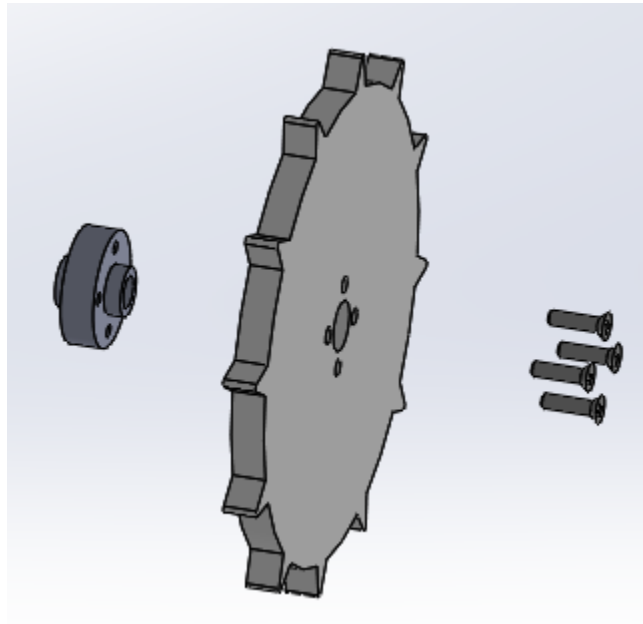
2. Mount the bearing hub to the sprocket wheel using the 4-40 X 0.5 flat head machine screws. Tighten the screws until the heads are flush with the wheel.



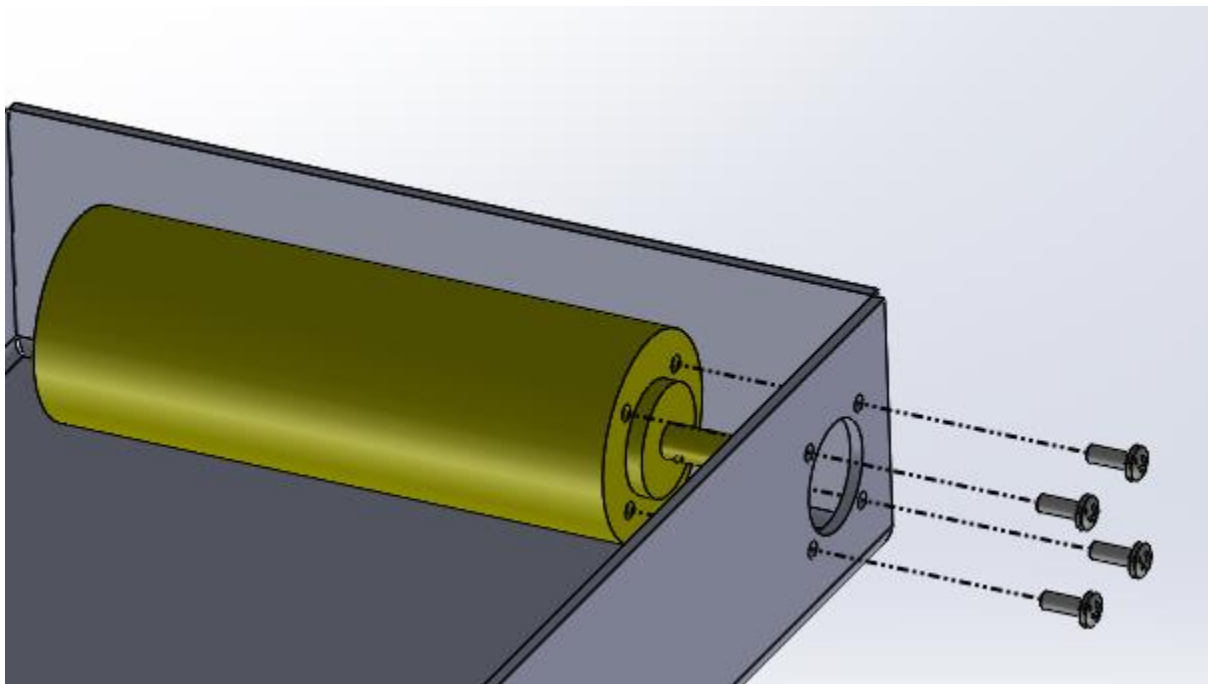
3. Finish the idler wheel assembly by pressing in the bronze sleeve bearing and sliding the $\frac{1}{4}$ -20 hex head bolt through, using plastic washers on either side. Tighten together with the flange nut oriented so that the flange faces away from the wheel. Adjust the tightness of the nut until the wheel spins freely around the bolt with minimal wobble.



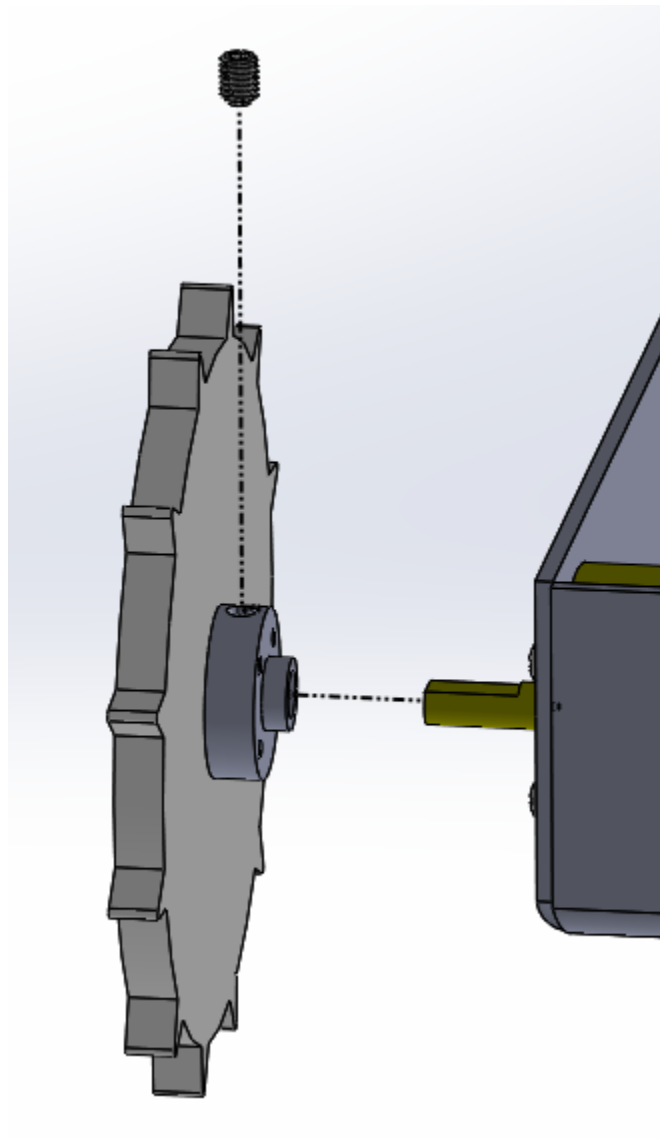
4. Mount the idler wheel assembly approximately in the center of the slot in the chassis (this may need to be adjusted when you put the tracks on). The serrated nut should press against the outside of the chassis and a second serrated nut should be tightened against the inside of the chassis. After tightening the nut, make sure the wheel still spins freely and adjust if necessary.



5. Bolt the 6mm drive hub to the sprocket wheel with the 4-40 x 0.5" machine screws.



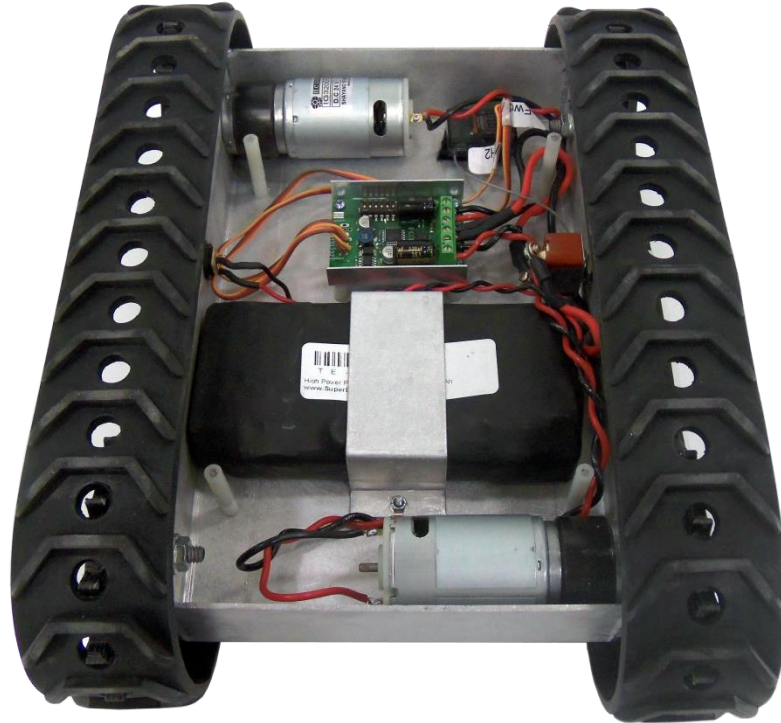
6. Now take the motor and bolt it onto the chassis using the M3 screws.



7. Slide the drive wheel onto the motor shaft and tighten the set screw onto the flat portion of the motor shaft.



8. Roll the track onto the wheel. Set one side of the track over the idler wheel and position the teeth inside the tread holes. Line up the other end with the drive wheel and slowly roll the track, idler wheel, and motor wheel (the motor will back drive) and the track will eventually roll itself into position.
9. Now that you have the treads on, roll them to see how they engage the teeth of the sprocket wheels. If you have the treads too tight, they will put a lot of friction on the motor and idler wheels. If the tracks are too loose they will likely not fall into the wheel teeth correctly. Adjust the tension by changing the position of the idler axle in the slot of the chassis. To do this, you'll need to remove the track and retighten the idler wheel before putting the track back on.



10. Mount batteries using battery brackets and hardware provided. Use foam tape on the bracket and underneath the battery to ensure a snug fit. Mark and drill 1/8" holes that match up with the holes in the battery bracket(s).
11. Measure a place on the chassis to mount the switch. The rear plate of the chassis is a good place for it. Make sure that it is mounted low enough that it doesn't interfere with the lid. Drill a 1/2" hole.
12. Mark the holes for the motor controller and drill them out to 1/8". Use the hardware in the provided hardware kit to mount it.
13. Mark and drill a hole to mount the fuse block (also 1/8").



Electrical Assembly

For electrical assembly please follow the provided schematic on our website:

[Schematics](#)

For additional support on wiring, soldering, and crimping, please read the following support pages:

[Electric Motor Hookup Support](#)

[Electric Power Hookup Support](#)

[Soldering Tips](#)

[Crimping Wires](#)

Operation

1. Before powering on the robot make sure it is up on blocks so the wheels can spin freely. Occasionally some or all of the wheels start as soon as the motor controller gets power. In this case the settings of the motor controller need to be changed.
2. Make sure to use the correct DIP switch settings. If using a Sabertooth motor controller in R/C mode switch 1 should be DOWN (closest to the number) and all other switches should be UP. If using a different mode see the manual for the motor controller you are using on Dimension Engineering's website.

Binding a Spektrum Remote

3. Insert the bind plug into the receiver and power on the robot.
4. While pressing the Bind button, power on the transmitter.
5. Release the Bind button after the receiver's LED stays illuminated. This indicates the receiver is bound to the transmitter.
6. While the robot and transmitter are still powered on, remove the bind plug from the receiver.
7. If the wheel aren't moving as desired, it may be necessary to swap the Aleron and Elevator plugs or to reverse the channels on the transmitter. To reverse channels see the instructions for "Servo Reversing" in the Spektrum documentation.



General Terms

1. SuperDroid Robots, Inc is not responsible for special incidental or consequential damages resulting from any warranty or under any legal theory, including, but not limited to lost profits, downtime, goodwill, damage to, or replacement equipment or property, or any cost of recovering, reprogramming, or reproducing any data stored. ANY LIABILITY SHALL BE LIMITED TO REPLACEMENT OF DEFECTIVE PARTS. SuperDroid Robots, Inc. is further not responsible for any personal damages, including, but not limited to bodily and health damages resulting from any use of our products.
2. SuperDroid Robots, Inc. makes no representations as to the fitness of its products for specific uses. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS HEREBY EXCLUDED.
3. Agreements shall be construed in accordance with the laws of the State of North Carolina, and the rights and obligations created hereby shall be governed by the laws of North Carolina.
4. In the event a dispute or controversy arises, such dispute or controversy (including claims of default) shall be brought in the courts of Wake County, North Carolina and the plaintiff hereby agrees to this choice of venue.